REMARKS

I. Claim Rejections – 35 U.S.C. § 103

Requirements for Prima Facie Obviousness

The obligation of the examiner to go forward and produce reasoning and evidence in support of obviousness is clearly defined at M.P.E.P. §2142:

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

M.P.E.P. §2143 sets out the three basic criteria that a patent examiner must satisfy to establish a *prima facie* case of obviousness:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;

2. a reasonable expectation of success; and

3. the teaching or suggestion of all the claim limitations by the prior art reference (or references when combined).

It follows that in the absence of such a *prima facie* showing of obviousness by the Examiner (assuming there are no objections or other grounds for rejection), an applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443 (Fed. Cir. 1992). Thus, in order to support an obviousness rejection, the Examiner is obliged to produce evidence compelling a conclusion that each of the three aforementioned basic criteria has been met.

Applicant further notes that the U.S. Supreme Court ruling of April 30, 2007 (*KSR Int'l v. Teleflex Inc.*) states:

> "The TSM test captures a helpful insight: A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. Although common sense directs caution as to a patent application claiming as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does."
>
> "To facilitate review, this analysis should be made explicit."

The U.S. Supreme Court ruling states that it is important to identify a *reason* that would have prompted a person to combine the elements and to make that analysis *explicit*.

Shimizu in view of Mahy

Claims 1-5, 10-16, and 19-22 stand rejected under 35 USC 103(a) as being unpatentable over Shimizu et al, US 7,167,277 (hereinafter Shimizu), in view of Mahy, US 5,832,109 (hereinafter Mahy).

Regarding claims 1 and 10, the Examiner argued Shimizu discloses a method and apparatus for color data conversion by teaching a system (citing Figs. 18 and 19, and col. 28, lines 53-55), comprising a plurality of color values corresponding to CMY color data value (citing col. 2, lines 28-59) automatically provided as input to an image processing device (citing Figs. 5, 7, and 19; col. 12, lines 43-67; and col. 13, lines 1-4), wherein said image processing device is under a control of a particular dimensional order (arguing processing in three-dimensional arrays, citing col. 13, lines 51-65). The Examiner further argued a color sensor (arguing measurement of L*a*b* values, citing col. 11, lines 65-67 and col. 12, lines 1-19) for dynamically determining which color value among said plurality of color values has attained a gamut limit (arguing judging whether color value is near the color gamut boundary, citing col. 13, lines 5-37) is taught by Shimizu.

The Examiner admitted Shimizu fails to teach a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit, thereby providing improved control for colors that are located external to said gamut. The Examiner, however, that argued Mahy teaches such a transformation module, arguing Mahy teaches and suggests that a color gamut is completely determined if its boundaries in color space are known, and the color space is 3-dimensional, and as a result the boundaries will be 2-dimensional (citing col. 2, lines 19-32).

The Examiner therefore argued it would have been obvious for one skilled in the art to modify Shimizu to include a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit, thereby providing improved control for colors that are located external to said gamut, taught by Mahy, because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (citing col. 4, lines 17-43 of Mahy). Therefore, by combining Shimizu with Mahy, a predictable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. First, the Shimizu reference makes no mention of "automatic input" in col. 12, lines 43-67 or col. 13, lines 1-4. In fact, the cited material is actually an explanation of fig. 7 which specifically does not require any input. Col. 12 lines 44-46 states "... L, a and b, which are variables indicating the grid numbers of a grid point in an L*a*b* space, are all initialized to '0'". There simply is no input needed in this example because the values are initialized at 0. Indeed, there is absolutely no mention of input, much less automatic input, anywhere in the cited language.

Further, while Shimizu discusses "three-dimensional arrays," the Applicant respectfully disagrees that this teaches control of a particular dimensional order. The language is Shimizu clearly limits the reference to three-dimensional orders. As is made clear by the language of claim 10 and Applicant's specification, the "particular order" is not limited to the three-dimensional case. Applicant's abstract specifically notes dimensions are not limited and may include the two-dimensional case as well.

The Applicant also respectfully disagrees that use of a color sensor to determine which color has attained a gamut limit has been taught. The first evidence of this is the fact the Examiner has cited two separate sections of the Shimizu reference in arguing this single point of Applicant's invention. First, the Examiner cites col. 11, lines 65-67 and col. 12, lines 1-19 of Shimizu arguing this teaches use of a color sensor. This relates to the

adoption by Shimizu of another patented method for creating color conversion tables. The Applicant is not asserting use of a color sensor in any context is unique. Indeed, color sensors are most assuredly used in many different types of applications. Rather, the Applicant is using the color sensor to determine which color value among the plurality of color values has reached the gamut limit, and not to create a color conversion table. It is important to understand that the entire process being described by the cited material and Fig. 7 of the referenced patent is being used to create a reference table. This is not the same as using a color sensor to determine if a color has reached the gamut limit. Indeed, the reference highlights the fact that the present claim is different because no table is created.

It is noteworthy that the words "in general" preface the language the Examiner has cited (col. 2, lines 19-32) as teaching a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit. Col. 2, lines 19-32 of Mahy simply constitutes a statement of the fact that a mathematical space of n dimension's can be defined by its boundaries and that said boundaries have a dimension n-1. This surely does not teach, as the Examiner suggests, using a transformation module to determine colors at or beyond a gamut limit. The language cited by the examiner is, in essence, a scholarly lecture on the meaning of "color gamut" and the geometric properties of mathematical spaces, followed by a conclusion that this language teaches or suggests use of a transformation to determine colors that have reached a gamut limit. The fact that the word "transformation" appears in the reference is not sufficient to teach a transformation module as taught by Applicant's present invention. In the context of Mahy "transformation" is only being used as part of the definition of a color gamut.

Finally, per the decision in KSR Int'l v. Teleflex Inc., it is not enough that the Examiner identify all elements of Applicant's invention in past references (which the Applicant suggests the Examiner has still failed to do); the Examiner must also explicitly explain the reason one of ordinary skill in

the art would have combined the referenced inventions in the way they are taught in Applicant's invention. The Examiner has cited col. 4, lines 17-43 suggesting this discussion explains the motivation for the combination of Shimizu and Mahy as a means for providing each and every claim limitation of Applicant's claims. First, neither Applicant's invention nor Shimizu ever mentions "lightness levels" as described by Mahy. This suggests there is no motivation to combine May with Shimizu as a basis for providing each and every claim limitation of Applicant's invention. In addition, the Examiner has failed to explain how the combination of elements supposedly taught by Mahy would improve the Shimizu invention. Specifically, there is no explanation of how a transformation module for automatically reducing a particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit, which the examiner claimed is taught by Mahy, would improve the Shimizu invention.

Based on the arguments presented above the Applicant respectfully requests the rejection of claims 10 and 1, based on 35 USC 103, be withdrawn.

Regarding Claims 2 and 11 the Applicant notes the Examiner's finding that claims 2 and 11 have been rejected for the same reasons as those discussed in the rejection of claims 1 and 10. Therefore, the arguments made in favor of claim 10 apply equally to the rejection of claims 2 and 11. The Applicant respectfully requests the rejection of claims 2 and 11, based on 35 USC 103, be withdrawn.

Regarding claims 3 and 12, the Examiner argued "Shimizu teaches wherein said particular dimensional order comprises a three-dimensional order" (citing col. 12, lines 30-42).

The Applicant notes if an independent claim is not obvious any claim dependent on that claim is also not obvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). The Applicant respectfully submits Claims 3 and 12 are dependent claims. Therefore, based on the arguments made in favor independent claims 1 and 10, the Applicant requests the rejection of claims 3 and 12 be withdrawn.

Regarding claims 4 and 13, the Examiner admitted Shimizu does not teach a transformation module further comprising a transformation module for reducing said three-dimensional order to a two-dimensional order. The Examiner argued Mahy teaches such a transformation module (citing col. 12, lines 19-32).

The Examiner therefore argued it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Shimizu to include a transformation module further comprising a transformation module for reducing said three-dimensional order to a two-dimensional order taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (citing col. 4, lines 17-43). The Examiner argued, therefore by combining Mahy with Shimizu, a predictable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. The cited passage lacks any reference to a "transformation module" as taught by Applicant's invention, or a description of any method or system at all. In fact, the cited passage lacks any insight into the art taught by Mahy. Rather, it is a simple description of the mathematical constructs of a color gamut. This is highlighted by the fact that this section of the Mahy reference is titled "Color Gamut Description" not "transformation module for order reduction".

The cited language in Mahy cannot be construed to teach or suggest a "transformation module", which is defined by Mahy as a mathematical function that expresses color value (col. 1, lines 44-50 of Mahy). This means even by the standard defined in Mahy, this is not a "transformation module". Being that there is no discussion in col. 12, lines 19-23 of Mahy, of any manifestation of a transformation module, or said module operating to reduce a three-dimensional order to a two-dimensional order, the Applicant asserts Mahy does not teach or suggest the limitations of claim 13 necessary to establish prima facie obviousness.

Further, the Examiner has cited col. 4, lines 17-43 in an effort to establish a motivation for the combination of Mahy and Shimizu. However,

the cited language offers absolutely no explanation of how the order reduction described in claim 13 would improve the Shimizu invention, as required by the holding in KSR Int'l v. Teleflex Inc.

Based on the arguments presented above the Applicant respectfully requests the rejection of claims 13 and 4, based on 35 USC 103, be withdrawn.

Regarding claim 14, the Examiner admitted that Shimizu does not teach a transformation module which reduces a three-dimensional order to a two-dimensional order in response to determining which colors among said plurality of colors have attained said gamut limit.

The Examiner argued Mahy teaches such a transformation (citing col. 12, lines 19-32). Therefore, the Examiner argued it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Shimizu to include a transformation module that reduces a three-dimensional order to said two-dimensional order in response to determining which colors among said plurality of colors have attained said gamut limit taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (citing col. 4, lines 17-43). Therefore, by combining Shimizu with Mahy, a predicable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. The Applicant argues the transformation described in Mahy is used to determine contours that ultimately are used to define the color gamut. By contrast, the reduction in claim 14 is in response to the dynamic determination of which of a specific plurality of colors has attained a gamut limit. Mahy and claim 14 share a similar means to a different end. The only element the cited language of Mahy and claim 14 actually share is the use of the word "transformation". As explained above, col. 12, lines 19-32 do not describe a transformation module even by the definition of "transformation module" provided by Mahy. The cited language does not describe a transformation module in any capacity.

Finally, the Examiner has cited col. 4, lines 17-43 in an effort to establish a motivation for the combination of Mahy and Shimizu. However, the cited language offers absolutely no explanation of how the order reduction described in claim 13 would improve the Shimizu invention, as required by the holding in KSR Int'l v. Teleflex Inc.

Therefore, the Applicant argues all the limitations of claim 14 are not taught or suggested by Mahy and that claim 14 is therefore not obvious. The Applicant respectfully requests, in light of the above argument, that the rejection of claim 14, based on 35 USC 103, be withdrawn.

Regarding claims 5-15, The Examiner admitted Shimizu does not teach a transformation module where said module further comprises a transformation module for reducing said three-dimensional order to a one dimensional order.

The Examiner argued Mahy teaches such a transformation (arguing Mahy discloses an invention to obtain the color gamut of an m-ink process in an n-dimensional color space with m>n by the union of the color gamuts of all the boundary n-ink processes of the m-ink process. This implies that for a 2-ink process, there is one-dimensional color space at the gamut boundary; citing col. 6, lines 44-48 and col. 8, lines 34-45).

Therefore, the Examiner argued it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Shimizu to include a transformation module that reduces a three-dimensional order to said one-dimensional order as taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (citing col. 4, lines 17-43). Therefore, by combining Shimizu with Mahy, a predicable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. The Applicant respectfully requests the Examiner review specifically, the argument the Examiner has offered that "Mahy discloses an invention to obtain the color gamut of an m-ink process in an n-dimensional color space...". Claim 15 is not a process for obtaining a color gamut. The use of

the word "obtain" shows that the goal of the cited reference is to describe or define a color gamut. Claim 15, by contrast, describes a transformation module for reducing a three-dimensional order to a one dimensional order. There is absolutely no mention in col. 6, lines 44-48 of any such transformation module.

Further, col. 8, lines 34-45 fails to even mention a three-dimensional order. How can such a citation teach or suggest the limitations of claim 15 when it fails to discuss a concept as foundational as a starting order of three-dimensions? The cited language also utterly fails to discuss any transformation module for order reduction of any kind. The word "transformation" does appear at col. 8, line 40 but is related to the concatenation of curves in determining closed contours, not the reduction of a three-dimensional order to a one-dimensional order.

With respect to the first prong of the aforementioned Prima Facie Obviousness test, the Applicant reminds the Examiner that the language of the references may not be taken out of context and combined then without motivation, in effect producing the words of the claims (and sometimes, not even the words or concepts of the claims), without their meaning or context.

Therefore, the Applicant argues all the limitations of claims 5 and 15 are not taught or suggested by Mahy and that claims 5 and 15 are therefore not obvious. The Applicant respectfully requests, in light of the above argument, that the rejection of claims 5 and 15, based on 35 USC 103, be withdrawn.

Regarding claim 16, the arguments made in favor of claims 5 and 15 apply equally to claim 16. In the interest of brevity those arguments are not repeated. The Applicant respectfully requests the rejection of claim 16 be withdrawn.

Regarding claim 19, The Examiner argued Shimizu teaches a color rendering device associated with a transformation module wherein said transformation module is integrated with said image processing device (citing Figs. 18 and 19, and col. 28, lines 53-55).

The Applicant respectfully disagrees with this assessment. The Applicant concedes Shimizu does teach a system in which a color rendering device is present. This is made clear in Fig. 19 and col. 28 lines 53-55. However, the key feature of claim 19 is that the transformation module is integrated with the image processing device. The Shimizu reference makes no mention of such integration. Indeed, Fig. 19 teaches away from the integration of the transformation module with a color rendering device. The color rendering device in that figure is specifically diagramed external to the other elements. Thus, rather than teaching integration, the Shimizu reference is specifically teaching away from the limitations of claim 19.

In addition, col. 28 lines 53-55 specifically state "FIG. 19 explains the general use form of a color conversion table ...". A color conversion table is not the same as a transformation module. In fact, no mention is made of a transformation module, as taught by Applicant's invention. Thus, it is impossible that all the limitations of claim 19 are taught or suggested by the Shimizu reference. Therefore, the Applicant respectfully requests that the rejection of claim 19, based on 35 USC 103, be withdrawn.

Regarding claim 20, The Examiner argued Shimizu teaches an iterative controller (arguing CPU 20 of Fig. 18 and PC 31 of Fig. 19) whose iterative output is input to said color rendering device (arguing Input/Output Device 25 of Fig. 18 and Printer 32 of Fig. 19), such that said iterative output of said iterative controller reflects a plurality of compensated color values requiring correction for rendering variations thereof (citing Fig. 19; col. 28, lines 53-67; and col. 29, lines 1-23).

The Applicant respectfully disagrees with this assessment. First, the Examiner's assertion that "CPU 20" of Fig. 18 or "PC 31" of Fig. 19 teach or suggest an iterative controller. A central processing unit is used to complete computer operations but that does not automatically qualify any invention which uses a CPU as iterative. "Iterative method" is defined at www.wikipedia.com as an attempt "to solve a problem by finding successive approximations to the solution...". The definition goes on to contrast this method to a "direct method which attempts to solve the problem in one-

shot...". These contrasting definitions are meant to make clear that a CPU is not iterative by nature. Rather, iteration is one solution method a CPU can use. In addition, iteration is implemented through use of computer software not hardware. As such, "CPU 20" and "PC 31" do not teach or suggest an iterative controller.

The cited language, in fact the entire Shimizu reference, fails to mention, even once, iteration in any form. Col. 28, lines 53-67 and col. 29, lines 1-23 discuss, as explained in col. 28, lines 53-55, the general use form of Fig. 19. This is an example based explanation of the process being described. There is absolutely no mention or even hint of a discussion of any iterative transformation module at work. The reference does however, once again discuss the use of a color conversion table stored in memory. Use of such a table is more analogous to the direct method described above since it is used for a simple "one-shot" conversion.

Based on the fact that the word "iterative" is not even mentioned, much less an iterative process described by the reference, the reference does not teach or suggest all the limitations of claim 20. Therefore, the Applicant respectfully requests that the rejection of claim 20, based on 35 USC 103, be withdrawn.

Regarding claim 21, the Examiner argued Shimizu teaches that the color rendering device comprises a printer (citing Fig. 19). The Applicant agrees with this assessment. However, the applicant refers the Examiner to the above argument regarding non-obvious dependent claims (In re Fine). In light of this argument, the Applicant respectfully requests that the rejection of claim 21, based on 35 USC 103, be withdrawn.

Regarding claim 22, the Examiner argued Shimizu teaches that the color rendering device comprises a photocopy machine (arguing Input/Output device 25 of Fig. 18).

The Applicant respectfully disagrees with that assessment. While the Applicant realizes an input/output device might include a photocopy machine, it is important to note that a photocopy machine is never mentioned in the Shimizu reference. Thus, the specificity of this claim is not considered,

taught or suggested by the Shimizu reference. This is further evidenced by the constant reference in the Shimizu reference to printers but the lack of reference to photocopy machines.

The applicant refers the Examiner to the above argument regarding non-obvious dependent claims (In re Fine). In light of these arguments, the Applicant respectfully requests that the rejection of claim 22, based on 35 USC 103, be withdrawn.

Shimizu in view of Mahy and further in view of Holub

Claims 6-8 and 17-18 stand rejected under 35 USC 103(a) as being unpatentable over Shimizu et al, US 7,167,277 (hereinafter Shimizu), in view of Mahy, US 5,832,109 (hereinafter Mahy) as applied to claims 1 and 10, and further in view of Holub, US 6,750,992 (hereinafter Holub).

Regarding claims 17 and 18, the Examiner admitted Shimizu and Mahy fail to teach a color sensor comprised of an offline sensor and an inline sensor.

The Examiner argued "Holub teaches wherein said color sensor comprises an offline sensor (citing Fig. 3A, col. 11, lines 66-67; and col. 12, lines 1-19) and an inline sensor (citing Fig. 3B, col. 15, lines 42-67; and col. 16, lines 1-24)".

The Examiner argued it would have been obvious to one skilled in the art at the time of the invention to modify Shimizu and Mahy to include an offline and an inline sensor taught by Holub to improve communication, control and quality of color reproduction (citing col. 3, lines 3-15). The Examiner therefore argued by combining Shimizu and Mahy with Holub, a predictable success of controlling out-of-gamut memory and index color can be achieved.

The Applicant respectfully disagrees with this assessment. Firstly, the Applicant argues there is no motivation for the inclusion of the sensor described in Holub to Mahy as required to demonstrate prima facie obviousness. The Examiner admits Mahy and Shimizu do not teach an inline

or offline color sensor. This is specifically because the art in Mahy operates without the need for a sensor. In addition, the operation described in Shimizu would not benefit from the inclusion of an inline v. offline sensor as described by Applicant's invention, its function only requires a sensor generally. That means the technique described in Mahy and Shimizu would not be improved by adding an inline or offline sensor. Thus, one skilled in the art would have no motivation to incorporate the Holub sensor in Shimizu or Mahy.

In addition, there is not a reasonable expectation of success as required for a showing of prima facie obviousness. The addition of a sensor to Mahy would add nothing to the invention because that process already functions independent of a sensor. By contrast the use of the sensor as described in claims 17 and 18 is an essential component in the iterative process (another feature both Mahy and Shimizu lack) by which the invention operates. Simply put, adding a sensor to Mahy would not improve or change the functionality of that invention. In addition, the Examiner cites "improve[d] communication, control and quality of color reproduction as motivation for the inclusion of the Holub sensor in Shimizu. However, the Examiner has failed to explicitly explain how the inclusion of an inline or offline sensor in the Shimizu reference would improve its function over the sensor already used, as required by the holding in *KSR Int'l v. Teleflex Inc.* Therefore, there is no reasonable expectation that the combination of the Holub sensor with the Mahy or Shimizu invention would successfully produce Applicant's invention.

Finally, the referenced material does not describe an inline or offline sensor as described in Applicant's invention. Rather the cited material discusses "nodes" and their function in the Holub invention. Where in the cited language is there any mention of "inline sensor" or "offline sensor". Such descriptions simply are not present.

The Applicant notes the Examiner's finding that claims 6-8 have been rejected for the same reason discussed in the rejection of claims 17 and 18. The arguments made in favor of claims 17 and 18 apply equally to claims 6

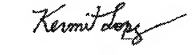
and 8. In the interest of brevity those arguments are not repeated. The Applicant respectfully requests the rejection of claims 6, 8, and 17-18 be withdrawn.

II. Conclusion

In view of the foregoing discussion, the Applicant has responded to each and every rejection of the Official Action. The Applicant has clarified the structural distinctions of Applicant's invention via the amendments and discussion provided herein. Applicant respectfully requests the withdrawal of the rejections under 35 U.S.C. §103 based on the preceding remarks. Reconsideration and allowance of Applicant's application is also respectfully solicited.

Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact the undersigned representative to conduct an interview in an effort to expedite prosecution in connection with the present application.

Respectfully submitted,



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